

Name _____

Period _____

Notes 4 – Computer Performance

Processor Speed

- The Clock Rate – The _____ at which a microprocessor executes instructions.
- Hertz (Hz) – A _____ used to describe the speed of a processors clock.
- Megahertz (MHz) – One _____ clock cycles (or pulses) per second.
- Gigahertz (GHz) – One _____ clock cycles (or pulses) per second.
- Instructions per Clock (IPC) – The average number of instructions a computer can execute in each clock cycle.
- Instructions per Second (IPS) – The average number of instructions executed in each second.
- 1.3 GHz means that the microprocessor's clock operates at a speed of _____ BILLION cycles per second.

Multi-Core Processors

- A computers performance can be improved by purchasing one with _____ Core Processors.
- Plugging two processors into one integrated circuit, ideally would give the user nearly twice the power as a single core processor. In practice, however, the performance gain is far less, only about 50%.

Monitor Performance

- Aspect ratio – Is the ratio of the horizontal _____ to the vertical length.
- Viewable Image Size – The actual amount of _____ that is available to display a picture, video or working space.
- Resolution – The _____ of the grid used to display or print text and graphics; the greater the horizontal and vertical density, the higher the resolution.

Pixels- Picture Element

- The _____ in a graphic image; computer display devices use a matrix of pixels to display text and graphics.

RAM or Random Access Memory

- Ram memory has the ability to go directly to a specific storage location _____ sequentially from the beginning
- Very volatile--_____ all _____ when power is lost.
- SRAM or Static RAM – Is often used as _____ for the CPU.
- DRAM or Dynamic RAM – Is the most common form of RAM memory.

ROM or Read Only Memory

- Because it is _____ with the desired _____ permanently stored in it; data stored in ROM cannot easily be modified and usually never is.
- Data can be read from ROM disks, but such disks cannot store new data on them.
- The BIOS and Firmware are examples of ROM

❏ Binary Number System

- A method for representing letters or numbers using only two digits, 0 and 1.
 - Bit - Each ____ or ____
 - Byte - ____
- Also referred to as Base ____ Binary Code.

❏ Bit

- The smallest unit of data a computer recognizes.
- ____ 0 or 1

❏ Byte

- Equal to ____
- 1 byte = one character such as K
- 4 bytes could spell the word BYTE
- 100 bytes would be about an average sentence.

❏ Kilobyte

- Approximately ____ bytes
- Exactly 1,024 bytes
- Approximately a paragraph
- 100 Kilobytes would equal an entire page

❏ Megabyte

- Approximately 1 ____ bytes
- Exactly 1,048,576 bytes
- Equals 1000 Kilobytes
- 3 ½ Floppy holds 1.44 MB or a small book
- 100 megabytes would be enough to hold a couple volumes of the encyclopedia britannica
- 700 megabytes is what a CD-ROM will hold

❏ Gigabyte

- Approximately 1 ____ bytes
- 1000 Megabytes
- Twice the amount of data a CD-ROM can hold
- 10 yards of books on a shelf

❏ Terabyte

- Approximately 1 ____ bytes
- 1000 Gigabytes
- =300 hours of video
- 1000 copies of Encyclopedia Britannica
- 10 Terabytes could hold the entire Library of Congress

❏ What's Next ...

- Petabyte=1000 Terabytes
- Zettabytes=1000 Exabytes
- Brontobyte=1000 Yottabytes
- Exabyte=1000 Petabytes
- Yottabytes=1000 Zettabytes

❏ Hard Disc Capacity

- Since the first computer was produced
 - The Capacity per HDD increasing from 3.75 megabytes to 4 terabytes or more, more than a million times larger.
 - Price decreasing from about US\$15,000 per megabyte to less than \$0.00006 per megabyte

❏ CD's or Compact Discs

- Using ____ technology compatible devices can read the data that is stored on compact disks.
- Basic Types of CD's:
 - CD-DA Sound Recordings Only
 - CD-ROM Data Storage

- CD-R..... Write once audio/data storage
- CD-RW Rewritable Media
- CD-ROMs are popularly used to distribute computer software, including games and multimedia applications, though any type of data can be stored on a CD-ROM
- Can store up to _____ MB of data.
- _____ minutes of Audio

📀 DVD's or Digital Video Discs

- DVDs offer _____ storage capacity than compact discs while having the same dimensions.
- Basic types of DVD's
 - DVD-ROM Can only be read
 - DVD-R Recordable once
 - DVD+R..... Recordable once
 - DVD-RW Re-recordable and Erasable
 - DVD+RW..... Re-recordable and Erasable
 - DVD-RAM Re-recordable and Erasable
- Two Formats:
 - DVD-Video
 - DVD-Audio
- SL or Single Layer discs hold _____ Gigabytes
- DL or Double Layer discs hold _____ Gigabytes

📀 BD's or Blu-ray discs

- an optical disc storage medium designed to _____ the DVD format.
- Basic types of Blu-ray discs:
 - BD-ROM..... Can only be read
 - BD-R..... Writable Once
 - BD-RE Rewritable and Erasable
 - BD-R DL Double Layer - Writable Once
 - BD-RE DL Double Layer - Rewritable and Erasable
- Conventional Blu-ray Discs contain _____ GB per layer, with dual layer discs (50 GB) being the industry standard for feature-length video discs. Triple layer discs (100 GB) and quadruple layers (_____ GB) are available for BD-XL re-writer drives.
- The name Blu-ray Disc refers to the _____ used to read the disc, which allows information to be stored at a greater density than is possible with the longer-wavelength red laser used for DVDs.

📀 Storage Medium Options

- Format
 - _____ the disk for use for a specific computer language.
- Write-protect
 - Setting the disk so that it _____ be _____ or _____ to.